

Mr. Wm. H. Applegate
with Author's regards

MEXICAN FORMICIDÆ.

BY

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Extract from Proc. Cal. Acad. Sci., Ser. 2, Vol. V.

4237

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The present paper is based upon a collection of Formicidæ, made by Messrs. Eisen and Vaslit during September, 1894, in the Cape Region of Lower California and during October and November on the mainland of Mexico; the majority having been taken in the territory of Tepic, and on an overland trip from the city of Tepic to Mazatlan, all on the Pacific Coast of Mexico.

In addition to a few species which have been previously recorded by me, the collection contains quite a number of new or otherwise interesting forms, some of which have not heretofore been observed to occur so far north, while a few extend their territory into Texas and even as far east as Missouri.

Subfamily CAMPONOTINI.

I. BRACHYMYRMEX ADMOTUS Mayr.

Brachymyrmex admotus Mayr., Verh. zool. bot. Ges. Wien, xxxvii, 1887, p. 523.

Worker: Length, 1.6 mm. Head somewhat longer than broad, its sides nearly parallel and slightly arcuate; the occiput emarginate. Clypeus broader than long, strongly convex, arcuate in front. Scape, reaching beyond the occiput. Ocelli very minute. Mandibles narrow and furnished with four acute teeth; their surface polished, indistinctly striated and sparsely punctured. Thorax not much longer than the head, stout, of nearly equal width; the prothorax about one-fourth narrower than the head; constriction between the meso- and metanotum rather deep, the declivity of the metanotum flat and longer than the basal section. Scale small, narrow, rounded at apex. Entire surface of body polished, the thorax and abdomen with extremely fine and transverse

2D SER., VOL. V.

December 30, 1895.

striæ. Pubescence yellowish, the erect hairs rather coarse and sparse, most dense on the abdomen; antennæ and legs without erect hairs. Appressed pubescence most dense on the head, antennæ and legs.

Color of the head, antennæ and thorax brownish-yellow, the abdomen somewhat darker brown, with the sutures paler. Clypeus, mandibles and legs paler yellow, the femora often more or less distinctly dusky.

Five specimens. Tepic, Mexico.

2. *PRENOLEPIS LONGICORNIS* (Latr.) Roger.

Formica longicornis Latreille, Hist. nat. Fourmis, 1802, p. 113.

Prenolepis longicornis Roger, Verz. d. Formiciden, 1863, p. 10.

For synonyms and references, see Dalla Torre, Cat. Hymenopterorum, vii, Formicidæ, 1893, p. 179.

Worker: Length, 3 mm. Head about twice as long as broad, rounded behind, its sides nearly parallel. Clypeus strongly convex and with a rather sharp median carina. Mandibles narrow and with about four or five acute teeth. Antennæ very long and slender, the scape about three times the length of the head. Thorax elongated, slender; dorsal surface of the pro-mesonotum slightly arcuate, the suture dividing them nearly obsolete; metathorax slightly elevated posteriorly, gently and uniformly arcuated and furnished each side, above the coxæ, with a small conical tubercle.

Scale stout, narrow, slightly broadest at apex. Abdomen ovoid, pointed posteriorly. Legs long and slender. Pubescence whitish; erect hairs coarse and rather sparse; a few semi-erect hairs on femora and tibiæ; appressed pubescence observed only on legs and antennæ. Head and body polished and faintly shagreened.

Color black, with a bluish reflection on the head and thorax; scape and legs black or brownish; palpi whitish; tarsi and posterior margin of the abdominal segments yellowish or brownish.

Numerous specimens. Tepic, Mexico.

A cosmopolitan species; common in the tropical regions of Asia, Africa, Australia and America, and in many of the hothouses of Europe and this country.

3. *PRENOLEPIS ANTHRACINA* Rog. var. *NODIFERA* Mayr.

Prenolepis nodifera Mayr, Sitzber. Acad. Wien, lxi, 1870, p. 388.

Prenolepis nodifera Mayr, Verh. zool. bot. Ges., xx, 1870, p. 948.

Prenolepis nodifera Forel, Mittheil. Munch. ent. Ver., v, 7, 1881, p. 2.

Prenolepis nodifera Forel, Bull. soc. Vaud. sc. nat. (2) xx, P. 91, 1884, p. 348.

Worker: Length, 2.4-2.8 mm. Head about twice as long as broad, the sides parallel and nearly straight, rounded behind the eyes, the occiput slightly emarginate. Clypeus of the usual form, rather strongly convex and carinated along the middle. Mandibles furnished with six acute teeth. Antennæ rather stout, the scape about one-fourth longer than the head. Thorax of the usual shape in this genus, the meso-metanotal constriction deep; the metanotum convex, elevated, nodiform, with an acute angle each side at base of the declivity. Scale narrow, wedge-shaped, somewhat broadest and slightly rounded at the apex. Abdomen of the usual shape. Legs rather stout.

Erect hairs blackish, rather coarse and quite dense, though less dense on the scape and legs. Appressed pubescence whitish, most dense on the legs and antennæ.

Color black, polished, the thorax and scale sometimes dark brown. Mandibles, base of scape, trochanters, tarsi and sometimes the apex of femora and tibiæ yellowish or brownish-yellow; posterior margin of abdominal segments, if extended, whitish.

Female: The characters of the female, which I judge as belonging to this species, are as follows:

Length, 4 mm. Head about as broad as long; eyes larger, the antennæ more slender, the clypeus shorter, broader and more distinctly truncate in front than in the worker. Thorax broader than the head and but slightly convex above. Scutellum broader than long; the metanotum short, convex, with two more or less distinct foveæ near its anterior margin. Scale broader than in the worker, its upper edge arcuate. Abdomen elongate ovate. Legs stouter than in the worker. Erect hairs rather short and fine, the appressed pubescence very dense on the head and abdomen.

Color of the head, antennæ, mandibles, some parts of the thorax and legs brownish-yellow; the rest dark brownish.

Wings wanting.

Male: Length, 2.6 mm. Head slightly shorter and the eyes larger and more projecting than in the worker. Mandibles narrow and with but one tooth at the apex. Metanotum not elevated or nodiform, gently sloping towards the scale, with two, posteriorly uniting, median carinæ. Scale broader than in the worker, its apex arcuate. Genital claspers long, slender, curved slightly inward, and furnished with numerous rather long and slender hairs. Wings brownish, the stigma and veins darker.

Erect hairs finer than in the worker, especially those of the abdomen. Scape without erect hairs. Appressed pubescence dense, particularly so on the head and thorax.

Coloration as in the worker.

Many workers, twenty males and two females.

Tepic, Mexico; San José del Cabo and Sierra San Lazaro, Cape Region, Lower California.

4. *CAMPONOTUS ESURIENS* (Smith) Mayr.

Formica esuriens Smith, Cat. Hym. Ins. Brit. Mus., vi, 1858, p. 54.

Camponotus vulpinus Mayr, Verh. zool. bot. Ges., Wien, xii, 1862, pp. 658 and 770.

Camponotus esuriens Mayr, Verh. zool. bot. Ges., Wien, xiii, 1863, p. 398.

Formica esuriens Norton, Am. Nat., ii, 1868, p. 59.

Formica (*Camponotus*) *esuriens* Norton, Proc. Essex Inst., vi, 1868, Comm., p. 1.

Camponotus atriceps st. *esuriens* Forel, Bull. soc. Vaud. sc. nat. (2), xvi, P. 81, 1879, p. 76.

Camponotus esuriens McCook, Proc. Acad. Nat. Sc., Philad., 1879, p. 140.

Camponotus atriceps st. *esuriens* Forel, Bull. soc. Vaud. sc. nat. (2), xx, P. 91, 1884, p. 340.

Numerous workers. Tepic, Mexico.

5. *CAMPONOTUS FRONTALIS* n. sp.

Large worker: Length, 7.8 mm. Head quadrangular, its sides parallel and gently curved anteriorly, the occiput slightly emarginate. Clypeus about twice as long as broad, its sides slightly diverging anteriorly, the anterior margin nearly straight. Frontal area small, obsolete. Eyes rather small, oval and but slightly projecting. Mandibles robust, furnished apparently with six teeth. Scale wedge-shaped, stoutest at base, broadest above, slightly convex in front, nearly straight behind, the apex rounded. Head and thorax opaque and densely and finely granulated; sparsely punctured; punctures of the prothorax somewhat coarser and more numerous and the surface slightly reticulate. Clypeus rugoso-granulate. Mandibles sub-opaque, finely and densely striated and sparsely punctured. Abdomen slightly polished, densely and finely granulated, the punctures rather numerous and coarse.

Erect hairs white and glistening, that of the head short and not readily observed and intermixed with few minute, appressed yellowish hairs. Pubescence of the thorax and

first abdominal segment rather dense, long and fine; pubescence of the antennæ and legs shorter and semi-erect; that of the scape intermixed with a few longer, erect hairs.

Color black, the abdomen with a slight bluish reflection. Head, in front of insertion of antennæ, including the clypeus and anterior part of face between the frontal carinæ, cherry-brown, the brown color extending obliquely to the lower external angle of the base of the mandibles; scape, first joint of the flagellum and joints two to four of the tarsi somewhat paler brown; posterior margin of the segments of the abdomen somewhat yellowish in a certain light.

Small worker: Length, 5.4 mm. Head slightly longer than broad, broadest just behind the eyes and slightly narrower towards the mouth; the occiput rounded; clypeus broadest in front and with a distinct median carina; the frontal area more distinct, the eyes larger and more convex and the antennæ longer and more slender than in the large worker. Head and thorax opaque, the sculpturing as in the large worker, except that the clypeus is not rugose; the abdomen is more distinctly polished and the bluish reflection more pronounced, the surface faintly but densely wrinkled. Pubescence similar to that of the large worker, though longer and denser on the head, coarsest in front of the antennæ and sides of the head.

Color entirely black, excepting the flagellum and tarsal joints, which are darker or lighter brown.

Two large, fifteen small workers. Tepic, Mexico. *Esch.*-No. 4477, U.S.N.M.

This species resembles very much *Camp. novogranadense*, differing from it, however, in the larger and broader head and darker and differently distributed brown color and denser pubescence of the large worker, and the entirely black head of the small worker. It seems also

to be related to *Camp. abscisus* and *andrei*, but differs from both in the bi-colored head.

6. CAMPONOTUS PUNCTULATUS Mayr var. RUFICORNIS n. var.

Small worker: Length, 5 mm. Head longer than broad, slightly narrowed anteriorly, its sides straight, rounded behind the eyes, the occiput but faintly emarginate. Clypeus triangular and with a rather acute, median carina; its anterior margin angulated. Frontal area minute, the frontal carinae nearly parallel; mandibles with four or five teeth. Antennae long and slender, the scape reaching considerably beyond the occiput. Prothorax about as broad as the head behind; suture between the meso- and metanotum obsolete, both segments descending in an almost straight line to the base of the scale. Scale very stout, of equal thickness and nearly quadrangular, the anterior face somewhat shorter than the posterior one, the upper edge thick and slightly rounded. Abdomen elongate oval. Legs rather long and quite slender. Head, thorax and abdomen delicately shagreened; mandibles smooth and sparsely punctured.

Erect hairs whitish, rather scarce on the head and thorax, more dense and slightly coarser on the abdomen; hairs of antennae and legs short and appressed, those along the inner edge of posterior tibiae longer and semi-erect. Appressed pubescence quite dense, yellowish and glistening.

Color black. Face in front of eyes, antennae and anterior angle of prothorax reddish-yellow, clypeus, anterior tibiae and the tarsi more brownish, the mandibles yellowish.

Two specimens. Tepic.

It differs from *punctulatus* in the paler portions of the head and legs and the denser appressed pubescence.

7. *CAMPONOTUS TEPICANUS* n. sp.

Large worker: Length, 5 mm. Head slightly longer than broad and slightly narrowest anteriorly, the sides nearly straight, the occiput but slightly emarginate. Clypeus somewhat longer than broad, slightly broadest anteriorly, convex above and without a median carina, its anterior margin arcuate. Frontal area obsolete. Mandibles very robust and provided with five or six rather blunt teeth. Antennæ short, the scape reaching barely beyond the occiput. Thorax uniformly arcuate above, broadest in front and gradually diminishing in width towards the scale. The prothorax is about two-thirds the width of the head and slightly convex above; sides of metathorax nearly parallel; sutures between the segments distinct; scale stout and of nearly equal thickness, broadest above, the apex slightly arcuate and bluntly rounded. Legs stout.

Head and thorax semi-opaque, the occiput polished, densely and finely granulated and sparsely punctured, the punctures most dense on the vertex and thorax; an impressed longitudinal line between the frontal carinæ. Clypeus somewhat polished, the granulation extremely fine, almost obsolete, the surface sparsely punctured. Mandibles nearly smooth, rather indistinctly and finely striated and sparsely punctured. Abdomen densely granulate-punctate.

Erect hairs reddish and quite dense and fine on the thorax and scale, somewhat coarser and more sparse on the abdomen, except on the posterior margin of the segments; very sparse on the head. Posterior tibiæ without erect hairs; very few on the scape. Appressed pubescence minute, most dense on the thorax and abdomen.

Head, scape, first joint of the flagellum, thorax and legs reddish-yellow. A large, somewhat squarish, poste-

riorly broadening spot on the vertex, remaining joints of the flagellum, teeth of mandibles, two, not well defined spots on the pronotum, the dorsum of the meso- and metanotum, the scale and abdomen black; the posterior margin of the abdominal segments somewhat yellowish.

Small worker: Length, 4 mm. In coloration and sculpturing almost identical with the large worker. The scape is somewhat longer; the coloration of the head, thorax, legs, etc., paler yellow, while the black color of the head extends over the entire vertex, the occiput and the space between the frontal carinæ.

Three specimens. Tepic.

This may be a race of *Camp. marginatus*, though it is more hairy than any of the races of that species known to me.

Subfamily DOLICHODERINI.

8. DOLICHODERUS GRANULATUS. n. sp.

Worker: Length, 3.6 mm. Head about as broad as long, broadest just behind the eyes and narrowing slightly towards the mouth, the sides nearly straight. Clypeus broader than long, convex and with a median carina, obtusely triangular in front. Frontal area very small, obsolete. Frontal carinæ strongly diverging and but slightly curved posteriorly. Scape reaching beyond the occiput. Mandibles robust and armed with four or five acute teeth. Thorax stout, compact, narrowing posteriorly, the prothorax nearly as broad as the head, somewhat convex above, its lateral margin forming a blunt carina; the dorsal surface of the pro- and mesonotum evenly arcuated, the suture between them distinct; constriction between the meso- and metanotum deep, the metanotum somewhat elevated, nodiform, the declivity steep, not excavated; the lateral margins of the dorsal or basal section form quite distinct carinæ. Scale stout, broad, convex in front

and behind, broadest above, the edge sharp and semicircular. Abdomen short, broadly oval, about as long as the thorax and rather broader than the head. Legs stout. Head densely and quite coarsely granulated. Thorax densely rugoso-granulate, the sculpturing slightly stronger than that of the head and somewhat concentric towards the sides of the pronotum; declivity of the metonotum as well as both sides of the scale transversely striated. Abdomen with dense and fine transverse wrinkles. Head and thorax semi-opaque; mandibles, legs and abdomen polished.

Erect hairs white, most dense and rather coarse on the abdomen, longer and finer on the thorax and base of the abdomen; quite profuse on the scape and legs. Appressed pubescence very scarce, most dense on the flagellum.

Color black; mandibles, and sometimes the entire antennæ reddish-yellow, the flagellum generally brownish towards the end. Eyes brown. Legs paler or darker brown, the tarsi and trochanters generally brownish-yellow.

Twelve specimens. Tepic.

— 9. *AZTEKA CERULEIPENNIS* Emery var. *FASCIATA* n. var.

Large worker: Length, 3.4–3.6 mm. Head somewhat longer than broad, slightly narrowest anteriorly, the sides gently arcuate, posterior angles rounded, the occiput quite deeply emarginate. Clypeus very broad, its lateral lobes extending to the sides of the head, the anterior margin but slightly arcuate. Mandibles robust and armed with eight or nine acute teeth. Scape about as long as the head and reaching somewhat beyond the occiput. Prothorax about one-fourth narrower than the head, convex above and at the sides, rounded in front. The me-

sonotum is somewhat elevated above the pro- and metanotum, convex above, compressed at the sides, and much narrower than the prothorax; the metanotum broadens posteriorly; the declivity is quite abrupt and shorter than the basal section. The scale is wedge-shaped, broadest above, the apex acute and arcuate. Abdomen small, broadly oval. Legs stout.

Body polished; mandibles finely and densely striated and sparsely punctured; head, thorax and abdomen finely and densely punctured.

Erect hairs quite dense, including legs and antennæ. Appressed pubescence yellowish, minute and rather dense.

Color of the head, antennæ, mandibles and sometimes the entire legs, reddish-yellow; sometimes the entire face or only a spot between the frontal carinæ, the upper margin of the vertex and the thorax brownish; the legs, except tarsi, brown or blackish; the abdomen paler than the head, with pale brownish bands. Teeth of mandibles and the eyes black.

Small worker: Length, 2.4 mm. The head is proportionally smaller and the occiput less strongly emarginated than in the large worker. It is almost uniformly brown, except the face each side of the frontal carinæ, the mandibles and scape, which are reddish, and the tarsi yellowish, while the whole surface is more highly polished.

Numerous specimens. Santiago Ixtuintla. *Gylke*, No. 4481, 4482, 4483.

The discovery of the sexes may prove this to be a distinct species.

— 10. *AZTEKA EISENI* n. sp.

Large worker: Length, 4.8–5 mm. Head longer than broad, the sides parallel and slightly arcuated, the occiput deeply emarginated; vertex with a short, impressed, median line. Clypeus of the usual shape and slightly ar-

cuated in front. Mandibles robust and armed with seven acute teeth. Antennæ rather short, the scape stout, not reaching to the occiput; the two basal joints and the last joint of the flagellum longest, joints three and four slightly longer than wide, the remaining joints about as long as wide and increasing gradually in width towards the end of the antennæ. Prothorax about one-fourth narrower than the head, widest in front of the middle and very convex; pro-mesonotal suture rather deep; the mesonotum distinctly elevated and convex; metanotum not elevated, convex and with a transverse impression each side near the anterior margin. Scale stout, nearly as broad above as below, the apex bluntly rounded. Abdomen broadly ovate and about as long as the thorax. Legs stout.

Polished. Head and thorax extremely fine and densely punctured, the punctures slightly stronger on the clypeus. Mandibles finely but rather indistinctly striated and finely and densely punctured, intermixed with few coarser punctures. Abdomen finely shagreened.

Erect hairs yellowish, sparse and almost wanting on the abdomen, most numerous on the head in front of the antennæ and mandibles, the thorax and around the end of the abdomen; antennæ and legs without erect hairs, except a few at the apex of the scape. Appressed pubescence whitish and dense.

Color lighter or darker brown, the thorax, legs and abdomen sometimes quite pale yellowish. Mandibles reddish-brown, the teeth and eyes black. Clypeus, the scape along its front edge, declivity of the metanotum, the base and sutures of the abdomen and the legs more or less distinctly yellow or brownish-yellow.

Small worker: Length, about 3.4 mm. Resembles in every respect the large worker, except that the head is

proportionately shorter and its sides more strongly arcuated, while the coloration is more uniformly brownish-yellow.

Twenty-two specimens. Santiago Ixtquintla. *Zyph. N. 4422, N. 4423, N. 4424*

This species resembles very much *Azteka angusticeps*, differing from it, however, in the larger size, the sparser erect hairs and the absence of such hairs on the antennæ and legs.

II. TAPINOMA MELANOCEPHALUM (Fab.) Mayr.

Formica melanocephala Fabricius, Entom. Syst., ii, 1793, p. 353.

Lasius melanocephalus Fabricius, Syst. Piez., 1804, p. 417.

Myrmica melanocephala Lepeletier, Hist. nat. Ins. Hym., i, 1836, p. 185.

Formica nana Jerdon, Madras Journ. of Litt. & Sc., xvii, 1851, p. 125.

Myrmica pellucida Smith, Journ. Proc. Linn. Soc. Zool., ii, 1857, p. 71.

Myrmica (Monomorium) pellucida Smith, Cat. Hym. Ins. Brit. Mus., vi, 1858, p. 124.

Formica familiaris Smith, Journ. Proc. Linn. Soc. Zool., iv, 1860, Suppl. p. 96.

Tapinoma melanocephalum Mayr., Verh. zool. bot. Ges. Wien, xii, 1862, p. 651.

Micromyrma melanocephala Roger, Berlin entom. Zeitschr., vi, 1862, p. 258.

One specimen. San Blas.

This species is quite common on all of the West Indian islands and has also been found in a hothouse of the botanical garden at Washington, D. C.

12. DORYMYRMEX PYRAMICUS Rog. var. FLAVUS McCook.

Dorymyrmex flavus McCook, Comstock, Rep. Cotton-worm, 1879, p. 188.

Dorymyrmex pyramicus var. *flavus* Mayr, Verh. zool. bot. Ges. Wien, xxxvi, 1886, p. 433.

Three specimens. San José del Cabo and Sierra San Lazaro, Cape Region, Lower California.

13. DORYMYRMEX PYRAMICUS Rog. var. NIGRA n. var.

Worker: Length, 2.8-3.4 mm. Black; the mandibles reddish-yellow, the under side of the head and the tarsi brownish. This form is somewhat more robust, though otherwise like *flavus*.

Twenty-five specimens. Tepic.

Subfamily PONERINI.

14. ECTATOMMA RUJIDUM Roger.

Ponera (Ectatomma) ruidum Roger, Berl. entom. Zeitsch., iv, 1860, p. 306.

Ectatomma ruidum Mayr, Verh. zool. bot. Ges., Wien, xii, 1862, p. 732.

Ectatomma scabrosa Smith, Trans. Ent. Soc., London (3) i, 1, 1862, p. 31.

Ectatomma scabrosa Roger, Berl. entom. Zeitsch., vi, 1862, p. 292.

Ectatomma ruidum Mayr, Verh. zool. bot. Ges., Wien, xxxvii, 1887, p. 539.

Eleven specimens. Tepic.

This species is quite common in Brazil, Central America and the West Indies.

— 15. ECTATOMMA (GNAMPTOGENYS) RIMULOSUM Roger
var. SPLENDIDUM n. var.

Worker: Length, 4-4.6 mm. Head longer than broad, its sides parallel, the posterior angles rounded, the occiput slightly emarginate. Eyes convex and projecting, placed beyond the middle. Antennæ rather short, the scape barely reaching the occiput, the flagellum clavate, joints two to eight shortest and about as long as broad. Clypeus triangular and about as broad as long, the anterior margin straight, the upper surface faintly concave. Mandibles elongated, narrow, leaving a large triangular opening between them when closed, the terminal half curved downward; the cutting edge smooth or faintly denticulate.

Thorax compressed at the sides, uniformly and gently curved and slightly convex above. Suture between the pro- and mesonotum obsolete, both segments forming one piece which is slightly broadest in front; pronotum somewhat angulated posteriorly and prolonged in front into a short neck. Meso-metanotal suture slight and most readily observed if viewed from the front. Metanotum of equal width, the declivity convex and bordered on each side by a curved carina, which at its upper end forms a minute and slightly projecting angle. Node very stout, longer than broad, truncate in front and behind, broadest and highest posteriorly, where it is as broad or somewhat broader than the metathorax; it is longitudinally arcuate, convex above and at the sides; on the anterior end of its under side is a large, flattened and backward curved tooth, the basal portion of which extends carina-like to near the end of the segment.

Abdomen longer than the thorax, anteriorly slightly broader than the scale and strongly constricted between the first and second segment. First segment with a tooth below the insertion of the scale.

Entire insect polished. Head, thorax, scale and the two basal segments of the abdomen closely and longitudinally striated above and at the sides, the striæ somewhat finer on the second segment of the abdomen, the remaining segments smooth and highly polished. Mandibles sparsely punctured. Erect hairs of the body, legs and scape fine and quite profuse.

Color red or yellowish-red, the abdomen somewhat paler; the head and thorax with a red reflection and the scale and two basal segments of the abdomen with a beautiful golden reflection. Cutting edge of mandibles black or dark brown; eyes black; scape and legs yellow.

Many specimens. Tepic. *Tyke*, No. 4483, U. S. N. M.

This variety differs from *rimulosum* besides the somewhat smaller size, in the larger scale and golden reflection. It comes apparently also near *Ectatomma* (*Gnamptogenys*) *continuum*, differing from it, however, in the larger size and other minor characters.

— 16. *PACHYCONDYLA VILLOSA* (Fab.) Mayr.

Formica villosa Fabricius, Syst. Piez., 1804, p. 409.

Ponera villosa Illiger, Mag. f. Insektenk. vi, 1807, p. 194.

Ponera bicolor Guérin, Iconogr. règn. anim., vii, Insect., 1845, p. 242.

Ponera pilosa Smith, Cat. Hym. Brit. Mus., vi, 1858, p. 95.

Ponera pedunculata Smith, Cat. Hym. Brit. Mus., vi, 1858, p. 96.

Pachycondyla villosa Mayr, Verh. zool. bot. Ges., Wien, xii, 1862, p. 720.

Formica villosa Roger, Berl. ent. Zeitsch., v, 1862, p. 287.

Two specimens. Tepic.

This species was also discovered by Mr. E. A. Schwarz at San Diego, Texas.

— 17. *PACHYCONDYLA HARPAX* (Fab.) Mayr.

Formica harpax Fabricius, Syst. Piez., 1804, p. 401.

Pachycondyla Montezumia Smith, Cat. Hym. Brit. Mus., vi, 1858, p. 108.

Ponera amplinoda Buckley, Proc. Ent. Soc., Philad., vi, 1866, p. 171.

Pachycondyla orizabana Norton, Am. Nat., ii, 1868, p. 64.

Pachycondyla harpax Mayr, Sitzb. Akad. Wiss., Wien, lxi, 1871, p. 397.

Two specimens. Tepic.

Specimens of this species, agreeing exactly with Buckley's description of *Ponera amplinoda*, were also discovered by Mr. E. A. Schwarz at Beeville, Texas, living under dried cow dung.

— 18. *ODONTOMACHUS HÆMATODA* (L.) Latr.

For synonyms and references, see Dalla Torre, Catalogus Hymenopterorum, vol. vii, Formicidæ, p. 50.

Two specimens. Tepic.

Subfamily DORYLINI.

— 19. ECITON (ACAMATUS) SCHMITTI Emery.

Eciton Schmitti Emery, Bull. Soc. Entom. Ital., v, 26, 1894, p. 183.

Eciton Schmitti Emery, Zool. Jahrb., viii, 1894, p. 258.

Many specimens. Tepic.

20. ECITON (ACAMATUS) MELANOCEPHALUM Emery.

Eciton melanocephalum Emery, Zool. Jahrb., viii, 1894, p. 260.

Eight specimens. Tepic.

21. ECITON (ACAMATUS) CALIFORNICUM Mayr subsp.
OPACITHORAX Emery var.

Eciton californicum Mayr, subsp. *opacithorax* Emery, Zool. Jahrb., viii, 1894, p. 260.

Numerous specimens. San José del Cabo.

It differs from the typical form in the slightly coarser sculpturing of the thorax.

22. ECITON NITENS Mayr.

Eciton nitens Mayr, Annu. Soc. natural., Modena, iii, 1868, p. 168.

Eciton nitens Mayr, Sitzb. Akad. Wiss., Wien, lxi, 1870, p. 398.

Two specimens. San Lazaro, Lower California.

These specimens, notwithstanding their rather small size, measuring only 2.4 mm. in length, agree apparently in every essential point with the description of the above species. I deem it therefore advisable, until a larger series has been obtained, to regard them as but a small form of that species.

Subfamily MYRMICINI.

— 23. PSEUDOMYRMA GRACILIS (Fab.) Mayr.

Formica gracilis Fabricius, Syst. Piez., 1804, p. 405.

Leptalea gracilis Erichson, Arch. f. Naturg., v, P. 2, 1839, p. 309.

Pseudomyrma bicolor Guérin, Icon. règn. anim., vii, Insect., 1845, p. 427.

Pseudomyrma bicolor Smith, Trans. Ent. Soc., London (2) iii, 4, 1855, p. 157.

Formica gracilis Roger, Berlin. entom. Zeitsch., vi, 1862, p. 289.

Pseudomyrma bicolor Norton, Am. Natur., ii, 1868, p. 65.

Pseudomyrma gracilis Mayr, Sitzber. Akad. Wiss., Wien, lxi, 1870, p. 407.

Pseudomyrma bicolor Rothney, Trans. Ent. Soc., London, 1889, p. 352.

Pseudomyrma gracilis Emery, Bull. Soc. Ent. Ital., xxii, 1890, p. 59.

Ten workers. Tepic.

This is an extremely variable species. In some of its forms the entire head, the thorax, both nodes, anterior and median legs, are reddish-yellow, the antennæ brown or blackish and the posterior legs and abdomen black. In another form, only the thorax, with the exception of a round spot on the mesonotum, more or less of the anterior and median legs and the first node are reddish, the rest black. A third form is black, with the anterior margin of the head, mandibles, base and apex of the scape, prothorax, margin of the mesonotum, apical third of anterior femora, the tibiæ and tarsi, petiole and apex of first node and base of abdomen reddish-yellow, while in a fourth form the anterior margin of the head, the mandibles, the pro- and metathorax, the anterior femora, except at base, and the anterior tibiæ and tarsi are only reddish-yellow and all the rest black.

— 24. *PSEUDOMYRMA PALLIDA* Smith.

Pseudomyrma pallida Smith, Trans. Ent. Soc., London (2) iii, 4, 1855, p. 159.

Pseudomyrma pallida Smith, Cat. Hym. Ins. Brit. Mus., vi, 1858, p. 155.

Ten specimens. Tepic.

— 25. *MONOMORIUM MINUTUM* Mayr, race *EBENINUM* Forel.

Monomorium minutum Mayr, race *ebeninum* Forel, Hist. Phys. Nat. Polit., Madagascar, Formicoides, xx, 1891, p. 165.

Numerous specimens. Santiago Ixtquintla, Tepic.

Very similar in appearance to *Monomorium* race *car-*

bonarium Smith, from which, however, it may be readily distinguished by the stronger meso-metanotal constriction and the more elevated posterior portion of the metanotum, the declivity of which forms nearly a sharp angle with the dorsal face of the segment, and in the more slender and longer pedicel of the first node.

This race is quite common on the West Indian islands and the Central American republics.

26. CREMASTOGASTER SUMICHRASTI Mayr, var.

Cremastogaster sumichrasti Mayr, Verh. zool. bot. Ges., Wien, xx, 1870, pp. 990 and 993.

Many specimens. Ixtquintla, Tepic.

Very similar in appearance and coloration to *Cr. missouriensis* Emery, but differing from it in the shorter terminal joint of the antennæ, the not emarginate posterior edge of the first node, the more transverse second node and the much longer and finer hairs of the head, thorax and abdomen.

27. CREMASTOGASTER OPACA Mayr.

Cremastogaster opaca Mayr, Verh. zool. bot. Ges., Wien, xx, 1870, pp. 989 and 992.

Twenty-one specimens. Tepic.

28. CREMASTOGASTER SCULPTURATA n. sp.

Worker: Length, 2.2–2.4 mm. Head polished, finely and sparsely striated above and below; granulated at inner side of eyes. Antennal foveæ finely reticulated. Clypeus with a flattened, smooth and polished median area which is bordered each side by a slightly elevated and posteriorly diverging carina; its lateral pieces sparsely striated. Mandibles polished, faintly striated and sparsely punctured. Club of antennæ two-jointed.

Pronotum with a few coarse and somewhat irregular carinæ. Mesonotum slightly elevated in front, sparsely

and coarsely sculptured. Basal section of the metanotum with a few, posteriorly diverging carinæ; the declivity small, triangular and smooth; metanotal spines rather long, slender, directed backward and upward. Sides of thorax coarsely granulated.

First node elongate-quadrate, flat above, rounded in front, truncate behind and with the posterior angles quite acute; surface smooth and polished. Second node small, rounded and with two rather deep longitudinal lines above, the space between them granulated. Abdomen highly polished and rather long and pointed; faintly transversely wrinkled.

Erect hairs of the head, thorax and abdomen rather sparse, whitish, long and slender; hairs of legs and antennæ shorter and sub-erect. Appressed pubescence apparently none.

Color black. Mandibles yellowish; antennæ and legs dark brownish, the coxæ and tarsi somewhat paler.

Four specimens. Tepic.

This species resembles somewhat *Crem. crinosa* Mayr, but differs from it in the sculpturing of the head, thorax and nodes; it comes also near to *Crem. carinata* and *curvispinosa* Mayr, from which it, on account of the peculiar formation of the clypeus and the differently sculptured thorax, may be readily separated.

29. CREMASTOGASTER LINEOLATA (Say) Mayr, race CERASI Fitch, var.

Myrmica cerasi Fitch, Trans. N. Y. State Agr. Soc., xiv, 1854, p. 835.

Myrmica cerasi Fitch, First and Second Rep. Ins. N. Y., 1856, p. 130.

Cremastogaster lineolata Say, var. *cerasi* Emery, Zool. Jahrb., viii, 1894, p. 282.

Numerous specimens. Sierra San Lazaro and San José del Cabo, Cape Region, Lower California.

Differs from the typical form in the slightly rougher

pro- and mesothorax and the somewhat coarser striæ of the metathorax.

Cremastogaster sanguinea Roger is evidently but a variety of *cerasi*.

30. PHEIDOLE PUNCTATISSIMA Mayr.

Pheidole punctatissima Mayr, Sitzb. Akad. Wiss., Wien, lxi, 1870, p. 400.

Pheidole punctatissima Mayr, Verh. zool. bot. Ges., Wien, xx, 1870, pp. 980 and 983.

Pheidole punctatissima Mayr, Verh. zool. bot. Ges., Wien, xxxvii, 1887, pp. 583 and 598.

Five soldiers and six workers. San Blas, Tepic.

— 31. PHEIDOLE TEPICANA n. sp.

Soldier: Length, 3 mm. Head about twice as long as broad, the sides parallel, faintly narrower posteriorly and with the angles rounded, the occiput deeply emarginate and with a deep median channel extending nearly to the clypeus. Frontal area minute, oval, deeply impressed. Clypeus very short, transverse, sinuate in front and behind; the anterior margin deeply emarginate at the middle. Antennæ short, the scape about one-half the length of the head. Mandibles robust, the cutting edge with two or three teeth at the apex.

A deep constriction between the meso- and metanotum. Lateral angles of the pronotum obtusely rounded; metanotum with two short, erect, stout spines. Nodes as in the worker.

Vertex finely and transversely striated and more or less strongly rugose at the posterior angles, the striæ interspersed with coarse punctures; face and clypeus longitudinally striated, the striæ becoming more rugulose between the eyes and frontal carinæ. Mandibles polished, sparsely punctured and with a row of coarser, elongated punctures near the cutting edge.

Thorax polished, its sides and dorsal face of the metanotum densely granulated, the declivity and channel between the spines finely reticulated or granulated. Sides of first node very finely granulate, the second node without sculpturing. Erect hairs quite dense and rather coarse, especially so on the head and abdomen.

Color dark brown or black. The anterior third of the head, extending between the frontal carinæ to about the middle of the head, and sometimes almost the entire sides of the head, the clypeus, mandibles, flagellum, tibiæ and tarsi, more or less distinctly reddish-yellow, the scape and femora brownish. Sometimes the entire head, thorax and nodes are reddish; the anterior half or more of the abdomen yellowish-brown, and legs and antennæ yellowish; or the posterior angles of the head and the thorax brownish and the legs and antennæ reddish.

Worker: Length, 2.2-2.4 mm. Head longer than broad, the sides arcuated, the occiput rounded, the vertex with a faintly impressed median line. Clypeus convex and with a slender median carina, the anterior margin arcuate. Mandibles of the usual shape, armed with a number of acute teeth. Pronotum convex above and at the sides, prolonged into a neck and without lateral angles; there is a rather deep depression across the anterior end of the mesonotum and a deep constriction between the meso- and metanotum; upper face of metanotum quite flat, the thorax short, stout, acute and about one-fourth the length of the basal section. Nodes of the usual shape, the second node rather small and nearly globular. Legs and antennæ rather long and slender.

Head faintly and indistinctly shagreened, granulated between the eyes and frontal carinæ. Sculpture of the clypeus indistinct; mandibles finely striated and sparsely punctured. Thorax densely granulated, the pronotum almost smooth.

Erect hairs fine and sparse, slightly more dense on the scape and abdomen.

Polished; black or dark brown; mandibles and tarsi yellowish.

Ten soldiers, twenty-five workers. Tepic. *July 16, 1948, J. N. M.*

The worker resembles very much that of *Pheidole commutata* Mayr, but differs from it in the less strongly constricted suture between the meso- and metanotum, the longer metanotum and its thorax and smaller second node; the soldier has a much longer head and entirely different sculpturing.

— 32. *PHEIDOLE RUGIFRONS* n. sp.

Soldier: Length, 3.4–3.8 mm. Head very large; much longer and broader than the thorax; its sides parallel, the posterior angles rounded, the occiput deeply emarginate and with a deep furrow extending to the clypeus. Clypeus short, convex, its posterior angle extending far between the antennæ, the posterior margin deeply emarginate each side, arcuate in front and deeply emarginate at the middle. Antennæ very short, the scape not reaching to the middle of the head. Mandibles very robust and with one or two blunt teeth at the apex. Thorax rather deeply constricted between the meso- and metanotum, the latter with two short and stout, acute and erect spines; the declivity concave; pronotal angles obtusely rounded. Upper edge of first node straight or slightly concave; second node transverse, broader than long, with the lateral angles obtusely rounded.

Head, semi-opaque and densely reticulate-striate, the reticulation somewhat longitudinal in front and more or less distinctly transverse on the occiput; space between the frontal carinæ and the clypeus longitudinally striate. Mandibles polished, coarsely and sparsely striated and sparsely and coarsely punctured. Pro- and mesonotum

transversely and finely striated above, sides of prothorax, anteriorly, rugoso-striate; metanotum and sides of the thorax densely granulated, the declivity polished and with fine, transverse reticulations. First node, smooth above, its sides finely granulated; second node finely and densely granulated and with a few longitudinal, impressed lines. Abdomen polished and sparsely punctured. Erect hairs whitish, rather dense, short and fine, though somewhat stouter on the abdomen.

Head red, with the posterior angles and median furrow sometimes brown or black, or with a blackish stripe each side of the occiput. Scape black or dark brown, the flagellum yellowish-brown, darker towards the end. Thorax and nodes black or brownish; the abdomen black. Femora dusky, or with a brownish tinge, the tibiæ generally paler and the tarsi more or less distinctly yellowish.

It resembles very much the soldier of *Ph. tepicana*, but differs from it in the larger size, the rougher head, deeper emargination of the clypeus and more transverse second node.

Seven specimens. Tepic. *Type*, No 4486, U.S.N.M.

— 33. *PHEIDOLE CARBONARIA* n. sp.

Soldier: Length, 2.2 mm. Head longer than broad, slightly broadest anteriorly, the sides nearly straight, the posterior angles rounded, the occiput deeply emarginate; a deep median furrow which reaches nearly to the frontal area. Frontal area elongate triangular and deeply impressed. Clypeus sinuate in front and behind and deeply emarginate at the middle. Antennæ short, the scape reaching slightly beyond the middle. Prothorax about one-half the width of the head and shaped like that of the worker, the sutures between it and the mesonotum but faintly indicated, the transverse depression of the mesonotum very slight, meso-metanotal constriction deep, the

metanotum very similar to that of the worker, the spines short and stout. Second node nearly globular.

Polished; the anterior third or more of the head quite densely and longitudinally striated, the rest sparsely punctured, the occiput with faint transverse wrinkles. Median section of the clypeus finely striated, the lateral section smooth. Mandibles polished and with but few punctures. Prothorax smooth or very faintly sculptured in front; the mesothorax smooth above and densely granulated at the sides; metathorax granulated above and at the sides. Nodes and abdomen smooth. Erect hairs white and rather sparse.

Black or dark brown; the anterior margin of the head, clypeus, mandibles, antennæ and legs yellowish or brownish-yellow.

Worker: Length, 1.8 mm. Head somewhat longer than broad, the posterior angles broadly rounded, the occiput distinctly emarginate; the face with a delicate median furrow. Frontal area distinct, triangular. Clypeus with a faint median carina and delicate oblique striæ each side of it, the anterior margin not emarginate. Antennæ rather short, the scape reaching but slightly beyond the occiput, the club longer than the remaining joints of the flagellum. Prothorax somewhat narrower than the head, rounded above and at the sides. Pro- and mesonotum without an apparent dividing suture; the mesonotum tapering posteriorly and without a transverse depression; meso-metanotal constriction quite deep; metanotum flat above and faintly broadest behind, the spines reduced to short, stout teeth, between which the surface is slightly concave. Nodes as in the soldier.

Polished. Head, with a few, almost imperceptible, short striæ between the frontal carinæ and in front of the eyes; punctures very fine and sparse. Mandibles

sparsely punctured. Prothorax without sculpturing, except faintly so on the neck, the mesothorax smooth above and densely granulated at the sides; metathorax granulated above and at the sides. Nodes and abdomen smooth. Erect hairs very sparse.

Black. Antennæ, clypeus and legs brown; teeth of mandibles black or brown; mandibles and tarsi yellowish.

The worker resembles very much in general appearance the genus *Monomorium*, but differs from it in the two-jointed palpi.

Four soldiers and seven workers. Tepic. *Type*, - No. 4488, U.S.N.M.

— 34. *PHEIDOLE FLORIDANA* Emery, var. *DEPLANATA* n. var.

The soldier of this variety differs from the typical form in the somewhat smaller size, the smoother and anteriorly less distinctly emarginate clypeus, more strongly granulated thorax, the flattened dorsal surface of the metanotum and the shorter and stouter thorus.

The worker is smaller and more strongly granulated. The head, metathorax and end of body dark brown, pro- and mesothorax reddish-brown; antennæ, legs, nodes and basal segments of the abdomen brownish-yellow.

Five soldiers and two workers. Tepic. *Type*, - No. 4489, U.S.N.M.

— 35. *PHEIDOLE VASLITH* n. sp.

Soldier: Length, 3.8-4.4 mm. Head somewhat longer than broad, deeply emarginate behind and with a deep median furrow, extending nearly to the clypeus. Clypeus convex, the anterior margin arcuate and notched at the middle. Antennæ rather stout, the scape about two-thirds the length of the head. Mandibles robust and with but two stout teeth at the apex. Pronotum slightly angulated at the sides; the mesonotum with a deep and broad

transverse depression, its posterior section with a small blunt tubercle each side anteriorly; meso-metanotal constriction deep and narrow, the metanotum with a deep channel along the middle, the lateral margins of the channel quite sharp; spines stout, acute and about one-fourth the length of the basal section. First node as usual; the second node transversely oval and with two longitudinal impressed lines.

Head reticulate-striate and densely and finely granulated; area between the frontal carinæ not granulated, the striæ diverging posteriorly; median area of the clypeus polished, and with coarse striæ along the anterior margin. Mandibles polished, sparsely and quite coarsely punctured. Pronotum transversely striated and indistinctly granulated, and with hair-bearing points. Mesonotum densely but rather indistinctly granulated, the anterior section with a few hair-bearing points; the entire metathorax as well as the sides of the other two segments densely granulated. Abdomen polished and very fine and densely shagreened and with hair-bearing points. Erect hairs rather long, fine and quite dense, those of the scape and legs somewhat shorter, appressed pubescence most dense on the head and abdomen.

Color yellowish-red or brownish-red, the head and abdomen frequently darker in the larger specimens.

Worker: Length, 2.6 mm. Head longer than broad, the sides gently arcuate. Clypeus convex, the anterior margin but slightly arcuated and slightly notched at the middle, with a slender median carina and a shorter one each side of it. Antennæ slender, the scape reaching beyond the occiput; joints two to eight of the flagellum longer than broad. Mandibles of the usual shape, with two long, acute teeth at the apex and a number of minute teeth behind them. Pronotum without projecting lateral

angles; the mesonotum with a rather deep median dépression, the posterior half slightly carinated each side and minutely angulated in front; meso-metanotal constriction quite deep; the basal section of the metanotum is longer than the declivity and somewhat broadest posteriorly, the upper surface is quite flat and slightly concave between the thorax, which are rather small, acute and nearly erect. Upper face of the first node nearly straight, the second node nearly globular.

Surface of the head, except between the frontal carinæ, quite densely and finely granulated, and with a few fine striæ in front and behind, and at inner and outer side of eyes; space between the frontal carinæ smooth; clypeus sparsely and finely granulated; mandibles faintly striated and quite coarsely punctured. Thorax densely granulated, the pronotum in front with two or three transverse striæ. Nodes densely granulated. Abdomen smooth, very fine and obscurely reticulated. Erect hairs rather sparse, long and fine, somewhat shorter on legs and antennæ; appressed pubescence sparse, most dense on the head.

Polished; thorax yellow or reddish-yellow; the head and nodes either of the same color or lighter or darker brownish, the abdomen brown or black. Antennæ and femora brownish; the clypeus, tibiæ and tarsi generally somewhat paler; mandibles yellowish, the teeth black or brown.

Nine soldiers and thirteen workers. Sierra San Lazaro. *Type, No. 4488, U.S.N.M.*

This species resembles very much *Ph. brevicornis* and *cubaensis* Mayr, but differs from both in sculpturing and other characters.

36. *PHEIDOLE SUSANNÆ* Forel, race *LONGIPES* n. race.

Soldier: Length, 4.4-4.6 mm. Head longer than

broad, the sides gently arcuated, the occiput deeply emarginate; the face with a rather deep median channel. Frontal carinæ nearly half the length of the head. Frontal area triangular. Clypeus with a sharp median carina; the anterior margin slightly sinuate each side and with a shallow and broad emargination at the middle. Mandibles with two large teeth at the apex. Antennæ rather slender, the scape reaching somewhat beyond the occiput. Pronotum without lateral tubercles; mesonotal depression not as strong and the metanotal spines longer and stouter than in the worker; second node nearly globular.

Head sub-opaque and densely granulated, the anterior half distantly striated and faintly reticulated, the posterior half with elongated, shallow depressions; space between the frontal carinæ quite smooth and faintly shagreened; the frontal area polished; clypeus faintly rugose about the middle and somewhat more coarsely so each side. Mandibles polished, rather densely and quite coarsely striated, sparsely, and very coarsely punctured near the cutting edge. Thorax finely and densely granulated, the granulation slightly coarser in the longitudinal depression of the metanotum; second node distinctly shagreened. Abdomen densely granulated, more coarsely so on the first segment and with numerous, more or less elongated shallow depressions and hair-bearing points. Erect hairs yellowish, coarsest and densest on the abdomen, very sparse on the thorax.

Color reddish-yellow; antennæ, mandibles and abdomen slightly brownish, anterior margin of the clypeus, the cutting edge and teeth of the mandibles brown. Eyes black.

Worker: Length, 3 mm. Head much longer than broad, much prolonged and tapering beyond the eyes, with a deep constriction at the end, forming a distinct

neck. Clypeus truncate behind, slightly arcuated anteriorly and slightly emarginate at the middle. Mandibles with two large and acute teeth at the apex, the rest finely denticulate. Antennæ very long and slender, the scape about twice as long as the head. Thorax much elongated, the prothorax elongated pyriform, broadest behind and with a neck-like constriction anteriorly; it is convex above and at the sides; transverse mesonotal depression quite strong, extending down to the lateral margin, the posterior half sloping gently and uniformly to the metanotum; meso-metanotal constriction somewhat stronger than that of the mesonotum. Metanotum elongated and gently curved towards the base of the first node, the basal section much longer than the declivity; declivity slightly concave along the middle; the thorus very minute. Second node subglobose.

Head finely and densely shagreened, the space between the frontal carinæ smooth; clypeus faintly granulated. Mandibles sparsely punctured. Pro- and mesonotum finely and densely shagreened, the metanotum granulated. Nodes apparently smooth. Abdomen smooth, the basal half or more finely shagreened. Erect hairs sparse and slender, shorter and suberect on the scape and legs; appressed pubescence very minute and sparse.

Color yellow; the mandibles and legs slightly paler, the abdomen faintly brownish. Eyes black. The whole surface polished.

Sixteen soldiers and numerous workers. Cape Region, Sierra San Lazaro. *Type*, No. 4489, *U.S.N.M.*

This form differs from *Ph. susannæ* in the somewhat larger size, longer antennæ, shallower transverse depression and not abrupt posterior half of the mesonotum, the less deep meso-metanotal constriction and the longer metathorax.

It seems also to be related to *Pheidole (Atta) testacea* Smith.

— 37. PHEIDOLE SUBDENTATA n. sp.

Worker: Length, 2.6 mm. Head nearly twice as long as broad, the sides parallel and slightly arcuated, rounded behind; clypeus convex, rounded behind, arcuate in front, the lateral angles reaching to the mandibles, without a median carina; frontal area but feebly indicated; mandibles of the usual shape, armed with two long teeth at the apex and six or seven minute teeth behind them. Antennæ rather long and slender, the scape almost twice as long as the head. All joints of the flagellum longer than thick, the club being about one-half the length. Pronotum about one-fourth narrower than the head, rounded above and at the sides, prolonged into a neck anteriorly; mesonotal depression shallow; meso-metanotal constriction deep; metanotum somewhat elevated posteriorly and slightly curved longitudinally, convex above and with a slight longitudinal furrow at base, the basal section much longer than the declivity and furnished with two minute teeth. Nodes of the usual shape.

Head smooth, sparsely striated in front of eyes and between base of antennæ; antennal grooves slightly granulated. Clypeus smooth, with few and indistinct striæ. Mandibles smooth, faintly and sparsely punctured. Pronotum and anterior half of mesonotum above, faintly shagreened and with a few hair-bearing points, posterior half of the mesothorax and the metathorax densely granulated; nodes and abdomen smooth, the petiole of the first node granulated laterally; the first segment of the abdomen sometimes with a few elongated, shallow, obsolete depressions. Erect hairs rather sparse, pale and slender.

Polished; yellowish-brown, the head and abdomen

generally somewhat darker, the clypeus, mandibles, antennæ and legs somewhat paler.

Many specimens. Tepic. *Tyke, No 4490, U. S. N. M.*

— 38. PHEIDOLE OBTUSOSPINOSE n. sp.

Soldier: Length, 6.5 mm. This species resembles very much the soldiers of *Ph. vasilitii*, though it is much larger, the scape is shorter, and only about one-half the length of the head, which is also more densely and more sharply reticulate-striate; the pro- and metanotum more distinctly transversely reticulate-striate; the metanotum, besides being granulated, is also finely and transversely striated between the spines and on the declivity; the spines are much stouter, obtuse at tip and more or less distinctly curved inwards; the second node is much broader, transversely oval and with numerous, rather deep, longitudinal striæ; the sculpturing of the abdomen is very similar but much coarser, and the hairs on every part of the body denser.

Color ferruginous, the abdomen varying from light brown to nearly black. Anterior margin of head black. Mandibles brownish-red.

Many specimens. Tepic. *Tyke, - No 4491*

PHEIDOLE Westwood, subg. CERATOPHEIDOLE, n. subg.

This remarkable species, of which but two specimens were obtained, agrees in almost all of its characters with those of soldiers of the typical Pheidole, from which it principally differs in the unusually long and slender antennæ, the scape of which reaches to the occiput, whereas the club of the flagellum, instead of being three-jointed as in Pheidole proper, is composed of four long and sub-equal joints. The number of joints in the palpi could not be ascertained. The discovery of the sexes and workers, if such exist, may exhibit additional characters,

which might entitle this form to a generic rank; for the present, however, it may be considered as being but a subgenus of *Pheidole*.

39. *PHEIDOLE* (*CERATOPHEIDOLE*) *GRANULATA* n. sp.

Soldier? Length, 5.6 mm. Head nearly twice as long as broad and somewhat broadest in front, the sides gently arcuate, posterior angles rounded, the occiput deeply and somewhat angularly emarginate; a deep median furrow extending to the frontal carinæ. Frontal carinæ about one-third the length of the head, converging posteriorly. Frontal area distinct, elongate triangular. Clypeus transverse, extending posteriorly between the base of the antennæ, the posterior margin arcuate, posterior margin of the lateral pieces deeply sinuate, the anterior margin arcuate and angularly emarginate at the middle. Eyes in front of the middle. Mandibles very robust and provided with two stout teeth at the apex. Antennæ twelve-jointed, slender, the scape reaching to the occiput; the seven basal joints of the flagellum subequal in length, each about four times as long as thick, joints eight to ten also subequal in length, each of them about one-third longer than any of the preceding joints, the last joint slightly the longest. Prothorax not quite one-half as broad as the head, broadest posteriorly, prolonged into a neck anteriorly, convex above and at the sides; mesonotum slightly elevated anteriorly and with a rather broad and shallow, transverse, median depression; meso-metanotal constriction deep and rather broad; metanotum flattened above, somewhat concave between the spines, the basal section about twice the length of the declivity; spines stout, directed back- and upward and about one-fourth the length of the basal section of the segment. Nodes as in *Pheidole*, the second node broader than long and obtusely angulated.

Head, densely and finely granulated and longitudinally reticulate-striate, the striæ becoming obsolete towards the occiput. Frontal area polished and with a median carina. Median section of the clypeus indistinctly granulated, with a median carina and a few anteriorly diverging striæ, the anterior margin coarsely punctured, giving it a serrated appearance. Mandibles polished, coarsely and rather sparsely striated and punctured. Entire thorax densely granulated, the neck of the pronotum with a few transverse striæ; both nodes and the abdomen also densely granulated, and the first abdominal segment with a few shallow and somewhat elongated depressions. Erect hairs yellowish, rather stiff and quite dense, especially so on the head and abdomen, intermixed quite evenly with shorter, suberect, stiff hairs. Legs and antennæ with appressed pubescence, intermixed with a few erect hairs on the scape and along inner edge of femora.

Color reddish-yellow, the legs paler; mandibles reddish, with the external margin and cutting edge, the anterior margin of the clypeus and the eyes black.

Two specimens. Tepic.

This form appears to be the connecting link between *Pheidole* and *Messor*.

— 40. *APHÆNOGASTER MUTICA* n. sp.

Worker: Length, 5 mm. Head longer than broad, slightly narrowest in front, rounded behind. Frontal area oval and with a few longitudinal striæ. Clypeus triangular, arcuate in front and with a broad and somewhat angular emargination at the middle. Mandibles armed with three large teeth at the apex and a number of smaller ones behind them.

Prothorax about one-fourth narrower than the head, very convex and with a short neck; the meso- and meta-thorax narrower and nearly parallel; anterior half of the

mesonotum oval, convex and somewhat elevated above the pronotum, its posterior half almost in a plane with the metanotum; constriction between the meso-metanotum quite deep and narrow; basal section of the metanotum rather more than twice the length of the declivity, its anterior half rounded above, the posterior half with a depressed, elongated triangular area which merges posteriorly with the declivity. Spines wanting, their position indicated by an angle at the upper edge of the declivity. First node stout, erect, convex in front, above and behind; second node pyriform if viewed from above, elevated and broadest behind, convex above and rounded behind.

Head, densely and finely granulated and finely reticulate-striate; striæ between the frontal carinæ diverging posteriorly; clypeus with a median carina and irregularly striated; mandibles densely and quite coarsely striated and sparsely punctured, the punctures becoming coarser towards the cutting edge. Prothorax highly polished and faintly shagreened; elevated section of the mesonotum highly polished and without sculpturing; the posterior section finely and irregularly striated and granulated, the lateral pieces densely granulated and with faint oblique striæ; metathorax delicately shagreened, with faint and sparse transverse striæ at base above and a few coarse, longitudinal striæ at sides above the coxæ. Nodes polished and but faintly shagreened. Abdomen polished, the basal half or more of the first segment finely shagreened.

Erect hairs yellowish, sparse, more dense and coarsest on the abdomen; pubescence of antennæ and legs short and suberect, with a few longer hairs along inner edge of femora.

Color of the head, antennæ, thorax and nodes reddish, the clypeus, mandibles and legs more yellowish; anterior

margin of the clypeus, the teeth and external edge of the mandibles and the abdomen black.

Eight specimens. San José del Cabo. *Zeughe*, No. 4492, U.S.N.M.

41. *ISCHNOMYRMEX MEXICANUM* n. sp.

Worker: Length, 7 mm. Head elongated and more than twice as long behind than in front of the eyes, tapering to a neck and terminating in a sharp and elevated collar. Frontal area triangular and depressed. Clypeus transversely triangular, its posterior angle rounded, the lateral pieces deeply sinuate, the anterior margin arcuate and broadly emarginate at the middle. Mandibles armed with three stout teeth at the apex and a series of smaller teeth behind them. Prothorax about one-half as broad as the head in the region of the eyes, prolonged anteriorly into a neck, the mesonotum with a shallow, transverse depression beyond the middle; metathorax much elongated, its basal section about four times the length of the declivity, it is nearly straight above and with a shallow, longitudinal channel along the middle, the spines are short, stout and toothlike. Nodes rather stout. Legs very long and slender, the first tarsal joint of the posterior legs at least as long as the tibiae.

Head, densely granulated, its anterior half somewhat irregularly rugoso-striate, with the striae between the frontal carinae somewhat finer; there is also a deep, elongated, median depression just beyond the carinae; frontal area with a median and several posteriorly converging carinae; clypeus indistinctly granulated; mandibles quite densely striated and sparsely punctured. Prothorax polished, faintly shagreened and very sparsely punctured; the mesonotum granulated along the middle, the anterior lateral half obliquely striated and the posterior half densely granulated; surface of the metathorax quite coarse and transversely rugoso-striate, the striae at the sides, poste-

riorly, fine and longitudinal. Nodes faintly shagreened. Abdomen smooth, the first segment with a few narrow and elongated depressions. Erect hairs yellowish, short and stiff, most dense on the abdomen, those of the antennæ and legs shorter and finer.

Polished, brown, the mandibles and tarsi reddish-yellow.

Two specimens. Tepic.

This species appears to be related to *Ischnomyrmex* (*Myrmica*) *longipes* Smith, the description of which is, however, so obscure as to leave considerable doubt about it.

— 42. *POGONOMYRMEX BARBATUS* (Smith) Mayr.

Myrmica barbata Smith, Cat. Hym. Ins. Brit. Mus., vi, 1858, p. 130.

For additional references, see Dalla Torre, Cat. Hym. vol. vii, Formicidæ, 1893, p. 118.

Twenty-three specimens. Miraflores and Sierra San Lazaro, Cape Region, Lower California.

— 43. *POGONOMYRMEX CALIFORNICUS* (Buckley) Emery.

Myrmica californica Buckley, Proc. Ent. Soc., Philad., 1867, p. 336.

Pogonomyrmex badius Mayr, Verh. zool. bot. Ges., Wien, xx, 1870, p. 971; xxxvi, 1886, p. 450; xxxvii, 1887, p. 610.

Pogonomyrmex badius Pergande, Proc. Cal. Acad. Sci. (2), iv, 1893, p. 33.

Pogonomyrmex californicus Emery, Zool. Jahrb., viii, 1894, p. 311.

Numerous specimens. San José del Cabo.

A somewhat larger, more robust and more strongly sculptured variety of this species, has also been found by Dr. Gustav Eisen at Tucson, Arizona.

44. *XIPHOMYRMEX SPINOSUM* n. sp.

Worker: Length, 3.2–3.4 mm. Head, thorax and nodes coarsely and longitudinally rugose, those of the head somewhat finer and the spaces between them distinctly reticulated, the clypeus quite coarsely striated;

striation of mandibles somewhat finer and denser. Antennæ stout, the scape not quite reaching to the occiput. Meso-metanotal constriction faint, the thorns stout, acute and straight, directed back- and upward and diverging towards the end; they are somewhat longer than the distance between them at base; declivity deeply concave, and with an acute, rather long and broad tooth each side of the insertion of the petiole of the first node. Nodes very stout, the first one almost cubical, convex above and at the sides, narrowest in front, with the anterior and posterior face perpendicular. Second node transversely oval, convex. Abdomen polished, the first segment finely and densely granulated and sparsely punctured. Erect hairs yellowish, shortest and stoutest on the abdomen, legs and antennæ.

" Fourteen specimens. Sierra San Lazaro, Cape Region, Lower California. *Type*, - No. 4493, "

45. *CYPHOMYRMEX FLAVIDUS* n. sp.

Worker: Length, 2.2-2.8 mm. Head, as usual in this genus; the antennal grooves deep and extending to the apex of the lateral angles of the occiput, the frontal carinæ with a deep and rounded emargination opposite the eyes; the occiput obtusely and deeply emarginate, the vertex with a depressed and flattened triangular area at the posterior angles and a circular area each side of the triangular frontal area. Clypeus slightly arcuate; the scape of the antennæ reaching slightly beyond the apex of the posterior angles; joints two to seven of the flagellum about as long as broad.

Pronotum convex above, carinated laterally and provided each side, posteriorly, with a prominent, stout and obtusely rounded tubercle, and with an acute angle anteriorly at insertion of the coxæ. Mesonotum oval and with a longitudinal furrow, the margins bordering it,

bluntly rounded and provided in front of the middle with a rounded, tubercular elevation. Meso-metanotal constriction deep, the metanotum concave along the middle; the spines are reduced to short and flattened, bluntly triangular teeth, a small tubercle in front of each tooth and a tubercle above the coxæ. First node, not counting the pedicel, broader than long, more or less distinctly arcuate in front, angulated posteriorly, with the upper surface quite flat; second node transverse, narrowest in front, and with a deep, posteriorly broadening channel along the middle. First abdominal segment with a depressed median line, reaching to or beyond the middle.

Face and clypeus sparsely but distinctly granulated, rest of body opaque and sparsely covered with minute, glistening, yellowish and appressed scale-like hairs, which are most dense on the abdomen, legs and antennæ.

Color yellow or reddish-yellow; generally the clypeus and a more or less well-defined, broader or narrower stripe along the middle of the face, of a lighter or darker brown; teeth of mandibles and eyes black.

Seven specimens. Santiago Ixtquintla, Tepic.

This species appears to be related to *Cyp. kirbyi* and *morschi*, but differs apparently from both in some of the characters mentioned.

— 46. ATTA LÆVIGATA (Smith) Mayr.

Ecodoma lævigata Smith, Cat. Hym. Ins. Brit. Mus., vi, 1858, p. 182.

Atta sexdens var. *lævigata* Mayr, Reise d. Novara, Zool. ii, 7, Formicidæ, 1865, p. 80.

Numerous specimens. Tepic.

— 47. ATTA (ACROMYRMEX) SAUSSUREI Forel.

Atta (Acromyrmex) tardigrada Buckley, st. *saussurei* Forel, Bull. Soc. Vaud. sc. nat. (2), xx, P. 91, 1884, p. 361.

Many specimens. Tepic.